



# UNITED STATES PATENT AND TRADEMARK OFFICE

JO  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,545	01/18/2002	Yasuhiro Terashima	1684/44903DV	7871
23911	7590	03/28/2005	EXAMINER	
CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300				JIMENEZ, MARC QUEMUEL
ART UNIT		PAPER NUMBER		
		3726		

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

8H

<b>Supplemental Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/050,545	TERASHIMA ET AL.
	Examiner Marc Jimenez	Art Unit 3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to \_\_\_\_\_.
2.  The allowed claim(s) is/are 10-12.
3.  The drawings filed on 18 January 2002 are accepted by the Examiner.
4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All    b)  Some\*    c)  None    of the:
    1.  Certified copies of the priority documents have been received.
    2.  Certified copies of the priority documents have been received in Application No. 09/355,282.
    3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

#### Attachment(s)

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.



Marc Jimenez  
Primary Examiner  
Art Unit 3726  
March 22, 2005

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

**In the specification:**

On page 7, the first full paragraph has been amended as follows:

[In Claim 1 of this application, a] A heat-resistant assembly for protecting boiler tubes is disclosed. This heat-resistant assembly has a heat-resistant block conformed to the contours of the boiler tubes and the surface of their connecting ribs. The boiler tubes and the ribs constitute a tube assembly, and the heat-resistant assembly is placed between the tube assembly and the combustion gases to protect the tube assembly from the combustion gases which are the products of combustion. This heat-resistant assembly is distinguished by the following. It has arms which protrude from the surface of the ribs toward the heat-resistant block and which have catches on their ends. The block has indentations into which the catches on the arms engage. The block can be attached to or removed from the tube assembly by means of the arms and indentations.

On page 7, the second full paragraph has been amended as follows:

[In Claim 2 of this application the] The heat-resistant assembly is further distinguished by the fact that the catches on the arms [according to claim 1] are formed by bending the ends of the arms which protrude toward the block so that they are angled vertically parallel to the tubes.

On page 7, the third full paragraph has been amended as follows:

[In Claim 3 of this application, the] The heat-resistant assembly is further distinguished by the fact that the cross section of the arm will have greater expansion from the tube assembly side towards the heat-resistant block side.

On page 7, the fourth full paragraph has been amended as follows:

To be more specific, as disclosed [in Claim 4 of this application], a cross section which goes through the catch on the arm nearer the block will have a greater area than one nearer the tube assembly because a projection is provided on the end of the arm nearer the block. A corresponding indentation is provided on the block. When the projection engages in this indentation, the block is locked to the arm.

On page 8, the first full paragraph has been amended as follows:

[In Claim 5 of this application, the] The heat-resistant assembly is further distinguished by the fact that projections are provided on both the upper and lower ends of the heat-resistant block. One of these projections is on the side of the block which faces the combustion gases; the

other is on the side which faces the tubes. When the blocks are stacked vertically, the projection on the gas side of one block will face the projection on the tube side of the next block.

On page 8, the second full paragraph has been amended as follows:

[In Claim 6 of this application, the] The heat-resistant assembly is further distinguished by the fact that the catches on the arms are formed by bending the ends of the arms which project toward the block so that they are angled vertically parallel to the tubes. The force of gravity will cause the block to descend so that the vertical catches can engage in its indentations. In addition, one projection is provided on the upper end of the block on the side facing the combustion gases and a second projection is provided on the lower end of the block on the side facing the tubes.

On page 8, the third full paragraph has been amended as follows:

[With the invention disclosed in Claims 1 through 6 of this application, the] The heat-resistant blocks are interlockingly fastened or attached to the tube assembly by arms on its ribs which are made to engage in indentations in the heat-resistant block taking advantage of the gravitational force exerted by the weight of the block. There is no need for bolts or nuts as were used in the prior art, which may protrude into the chamber filled with combustion gases. Thus there is no possibility of high- temperature corrosion.

The paragraph bridging pages 9 and 10 has been amended as follows:

[In Claim 7 of this application, the] The heat-resistant assembly is further distinguished by the fact that a space is provided at least between the end of the arm and the indentation of the

block. In the space is placed a fusible substance which will melt when the temperature of the arm exceeds a given value.

On page 10, the last paragraph has been amended as follows:

[In Claim 8 of this application, a] A heat-resistant assembly for protecting boiler tubes is disclosed. This heat-resistant assembly has a heat-resistant block conformed to the contours of the boiler tubes and the surface of their connecting ribs. The boiler tubes and the ribs constitute a tube assembly, and the heat-resistant assembly is placed between the tube assembly and the combustion gases to protect the tube assembly from the combustion gases which are products of combustion. This heat-resistant assembly is distinguished by the following. An arm with a catch on its end projects from the surface of the rib toward the heat- resistant block. An indentation is formed in the block facing the rib. A locking means such as a sleeve which is formed by a press to ensure that it will have sufficient strength, is adhered into the indentation. The heat- resistant block is fastened to the arm by the locking means.

On page 11, the first full paragraph has been amended as follows:

[In Claim 9 of this application, the] The heat-resistant assembly is further distinguished by the fact that the locking means is made of a heat-resistant substance of the same silica family as the heat-resistant block, and the adhesive agent is a high-temperature adhesive which can tolerate the heat of the locking means.

On page 11, the second full paragraph has been amended as follows:

[With the inventions disclosed in Claims 8 and 9 of this application, to] To mount the heat-resistant block to the arm of the tube assembly, a heat-resistant sleeve is first inserted into the indentation in the block opposite the rib. The outside surface of the sleeve is coated with a high-temperature adhesive, and the sleeve is attached (i.e., cemented) to the heat-resistant block. When the arm engages in the heat-resistant sleeve, the block is fixed to the tube assembly in the same fashion that a picture is hung on a wall.

On page 12, the second full paragraph has been amended as follows:

[In Claim 10 of this application, the] The fastening method for fastening a heat-resistant assembly for protecting boiler tubes is disclosed. This heat-resistant assembly has a heat-resistant block conformed to the contours of the boiler tubes and the surface of their connecting ribs. The boiler tubes and the ribs constitute a tube assembly, and the heat-resistant assembly is placed between the tube assembly and the combustion gases to protect the tube assembly from the combustion gases which are the products of combustion. Mortar is used to fasten the heat-resistant blocks on the tube assembly. This method of fastening the heat-resistant assembly on the tube assembly is distinguished by the following. When the mortar is provided onto the depressed portions of the exterior surface of the tube assembly, the application process is divided into two steps: applying the mortar to the tube assembly, and applying the mortar to the block. Once the mortar has been applied to specified portions of the block and tube assembly, the two surfaces are cemented together through the adhesive strength of the mortar. In this way the tube assembly and heat-resistant block are attached to each other by the mortar.

The paragraph bridging pages 12 and 13 has been amended as follows:

[In Claim 11 of this application, the] The fastening method for fastening a heat-resistant assembly is further distinguished by the fact that the portions where the mortar is to be applied to the tube assembly and the heat-resistant block are the indentations between contiguous tubes on the tube assembly, and the indentations on the curved interior surface of the block facing the exterior of the tube assembly on the heat-resistant block.

On page 13, the first full paragraph has been amended as follows:

[With the inventions disclosed in Claims 10 and 11 of this application, the] The mortar is applied uniformly to the exterior surface of the tube assembly, including the depressed portions. In addition, the application process is divided into two steps: applying mortar to the tube assembly and applying mortar to the block. Since the mortar is applied to exposed spaces, no expertise is required. Also because the spaces are exposed, the mortar can be applied to the specified thickness using a gauge such as a scraper.

On page 13, the third full paragraph has been amended as follows:

[In Claim 12 of this application, a] A fastening method for fastening a heat-resistant assembly for protecting boiler tubes is disclosed. This heat-resistant assembly has: a tube assembly having a number of tubes and the ribs which connect the tubes; a heat-resistant block conforming to the contour of the exterior surfaces of the tubes and ribs; interlocking mechanisms projecting from the surfaces of the ribs toward the block; and indentations on the surface of the

block into which the interlocking mechanisms engage. This fastening method is distinguished by the fact that it entails the following processes.

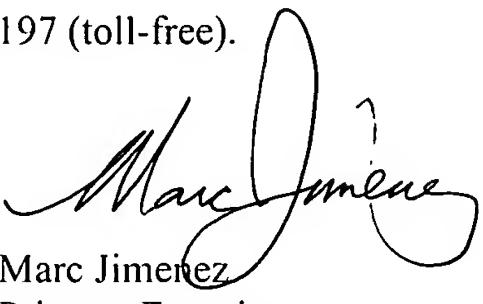
On page 14, the first full paragraph has been amended as follows:

[With the invention disclosed in Claim 12 of this application, the] The excess mortar, which has been applied to the indentations between the tubes, is removed from the curved inner surfaces with a curved scraper whose shape conforms to the outer surface of the tube. and the excess mortar, which has been applied between the outside of the tube and the curved inner surface of the block opposite the tube, is removed with a scraper using the flat straight surface of the block opposite the rib as a guide. Not only the excess mortar on both the block and the tube assembly but also that on the curved inner surfaces, is removed by a scraper with two concavities in its working edge. The operation of scraping off the excess mortar is made much easier, and fewer processes are required to construct a heat-resistant assembly for protecting boiler tubes.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc Jimenez whose telephone number (571) 272-4530. The examiner can normally be reached on Monday-Friday between 5:30 a.m.-2:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (571) 273-4530. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Marc Jimenez  
Primary Examiner  
Art Unit 3726

**MJ**  
March 22, 2005